
MSE PSE-SW5F Series

Power Source Equipment

(Power over Ethernet Switch)

PSE-SW5F-ST

PSE-SW5F-SC

PSE-SW5F-SFP

USER'S MANUAL



MSTRONIC CO., LTD.

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1. General Information

The PoE (Power Over Ethernet) Switch supports four Fast Ethernet ports with PoE injector plus one 100Base-FX up-link port. The switch provides Power over Ethernet functions to deliver 35Watts of power budget per port to a powered device(PD), which is in compliance with IEEE802.3af/at standard to deliver both Ethernet data and DC48V power through the traditional UTP or STP cable to a PD. This manual will help you install and maintain the PoE switch. Installation of the PoE switch is very easy and it will begin to operate as soon as you have powered it up.

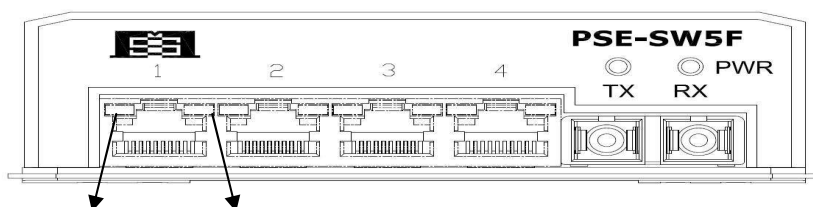
2. Hardware Description

*LED Indicator

There are 10 LEDs on the PoE switch to indicate the power and operational status. The following section describes the functions of each LED indicator.

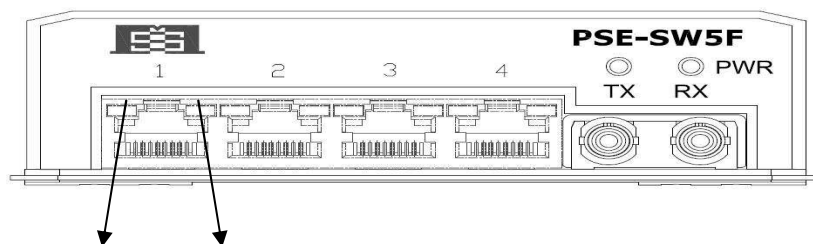
Front panel detail

For PSE-SW5-ST:



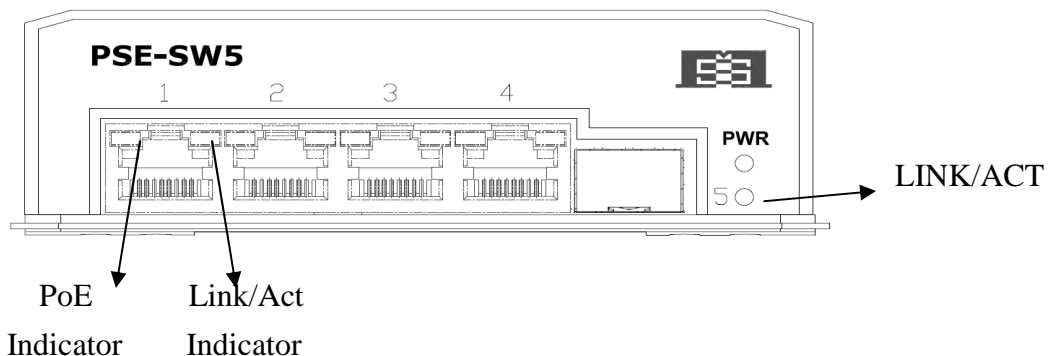
PoE Link/Act
Indicator Indicator

For PSE-SW5-SC:



PoE Link/Act
Indicator Indicator

For PSE-SW5-SFP:



*POWER Indicator

LED	STATUS	Description
Power (PWR)	Green	LED ON if power input has valid power apply.
	Red	LED ON if the following condition happens. *Power input under voltage ($V_{in} < 10V$) *Power input over voltage ($V_{in} > 59V$) *PoE over current(2.5A/per port) The indicator is used in current mode only.
	Off	No power in DC input

*SWITCH Indicator (the right LED of RJ-45)

LED	STATUS	Description
P1~P5 Link/Act	Green	A network device is detected, but no communication activity is detected.
	Blinking @43ms	This port is transmitting to, or receiving package from another device at 100Mbps.
	Blinking @120ms	This port is transmitting to, or receiving package from another device at 10Mbps.
	Off	No device is detected.

*PoE Indicator (the left LED of RJ-45)

LED	STATUS	Description
P1~P4 PoE	Yellow	A valid Powered Device(PD) is detected and delivering power on this port.
	Off	No PD is detected on this port.

*Power wiring

The PoE switch family includes 3 models, be used for 3 different ranges of input voltage as,

Current mode	full range voltage (10 to 57VDC)
24V-802.3at mode	24VDC typical(12 to 36VDC)
48V-802.3at mode	48VDC typical(40 to 57VDC)

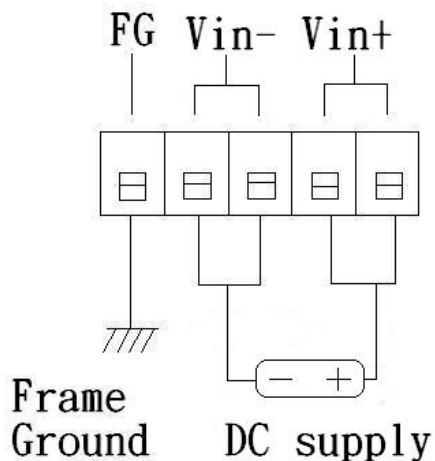
In current mode, please make sure the input current don't over 10A and make sure the input current don't over 2Amp.

For PoE (PSE) operation, the input voltage must be in the range of -42 to -60 VDC. Otherwise, the switch will function only as an Ethernet switch but will not provide any PoE power output. For PoE operation, make sure your 48 VDC supply is rated for at least 75 Watts for 4x 802.3af PoE port, or 150W for 4x 802.3at PoE port, plus some overhead for the switch.

The PoE PSE ports will deliver DC power over the spare pairs as the connection:

- * TX on lines 1 and 2
- * RX on lines 3 and 6
- * V+ on line 4 and 5
- * V- on line 7 and 8

Rear panel terminal block wiring detail:



*Ethernet Port Wiring

The PoE Switch supports Port 1 to Port 4 with automatic MDI/MDI-X crossover, autosense of the speed and duplex for 10Base-T or 100Base-TX connections. Automatic MDI/MDI-X crossover allows you to connect to other devices (switches, hubs, or workstations etc..), without regard to using straight-through or crossover cabling.

Port 1 to port 4 also provides Power over Ethernet function which delivers DC48V power through the spare pairs (pair 4,5 and pair7,8) to the PD.

The following tables depict the wiring diagram of straight-through and crossover cabling. The crossover cables simply cross-connect the transmit lines at each end to the receive lines at the opposite end.

Straight-through Cabling	
Pin 1	Pin 1
Pin2	Pin 2
Pin3	Pin 3
Pin6	Pin6

Cross-over Cabling	
Pin 1	Pin 3
Pin 2	Pin 6
Pin 3	Pin 1
Pin 6	Pin 2

Connect an Ethernet cable into any switch port and connect the other side to your attached device. The green Link/Act LED will light up when the cable is correctly connected. Refer to the **LED indicator** section for descriptions of each LED indicator.

If a port LED is off, go back and check for connectivity problems between that port and the network device it is connected to.

The maximum cable length for 10/100BaseT with Cat 5 twisted pair cables is typically 100 meters (328 ft.).

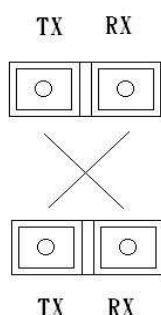
Fiber port wiring

The PoE switch(fiber mode) has one 100 Mbps (100Base-FX) multi-mode or single-mode fiber port. The maximum segment length is dependant upon the type of fiber optic transceiver installed in the switch. Refer to the technical specifications for details. Or contact a sales agent for the available fiber optic transceivers(Model NO.:MSE PSE-SW5F-ST or PSE-SW5F-SC or PSE-SW5F-SFP).

The automatic MDI/MDI-X crossover function does not apply to fiber connections. To connect the fiber optic port on one switch to the fiber optic port of another switch, simply cross-connect the transmitter at each end to the receiver at the opposite end as illustrated in the figure below.

The corresponding ACT/LNK LED will be ON state when you have made a proper connection.

Fiber cable wiring (SC to SC):



*PD Port Wiring

Port 1 to port 4 provides PoE inject functionality with a maximum 35W ability to power up the powered device using the straight-through or cross-over Ethernet cable.

The PoE switch follows the IEEE802.3af Alternative B mode connector assignment. The following table shows pin assignments of alternative A and B for the Power Source Equipment.

Conductor	Alternative A (MDI-X)	Alternative A (MDI)	Alternative B (All)
1	Negative Vport	Positive Vport	
2	Negative Vport	Positive Vport	
3	Positive Vport	Negative port	
4			Positive Vport
5			Positive Vport
6	Positive Vport	Negative Vport	
7			Negative Vport
8			Negative Vport

Be sure the twisted pair cable is bound with the standard RJ-45 pin, especially pins 4, 5, 7 and 8. If the RJ-45 is bound with the wrong pin number, the PoE switch will not recognize the PD and won't deliver DC48V power to PD. The yellow PoE LED will light up when the cable is correctly connected. Refer to the **LED Indicator** section for descriptions of each LED indicator. If a port LED flashes, go back and check for connectivity problems between that port and the network device it is connected to.

3. Model Information

Model	Input Voltage	Output voltage	802.3af/at
PSE-SW5F-ST-S PSE-SW5F-SC-S PSE-SW5F-SFP-S (current mode)	10-57VDC	10-57VDC (non-regulated)	No
PSE-SW5F-ST24 PSE-SW5F-SC24 PSE-SW5F-SFP24 (24V-802.3at mode)	12-36VDC	56VDC (regulated)	Yes
PSE-SW5F-ST48 PSE-SW5F-SC48 PSE-SW5F-SFP48 (48V-802.3at mode)	40-57VDC	40-57VDC (non-regulated)	Yes

4. Technical Specifications

Standards	IEEE802.3/IEEE802.3u standards (10Base-T/100Base-T/100Base-FX)
Ports	4 ports with 4 PoE(PSE), supports auto-crossover & auto-polarity, 1 port with the fiber connector
Transmission speed	100Mbps(100Base-T), 10Mbps(10Base-T) Auto-negotiation
Switch technology	store-and-forward
Protocols	CSMA/CD
Flow control	IEEE802.3x(full-duplex),back pressure(half-duplex)
Data transmission rate	148800pps for 100Base-T, 14880pps for 10Base-T
Address table	1K MAC address table, self-learning
Connector	RJ-45, SC or ST or SFP connector (for fiber optic port)
Note(SFP):	Fast Ethernet 100 Base-FX Complaint Slot for standard SFP transceiver (Duplex LC Connector)

Fiber optic port

*Fiber optic port:	ST/SC/SFP
*Port speed	100Base-FX(100Mbps),full duplex
*Wave length	1310nm
*Max TX power	-14dBm(mm), -8dBm(sm)
*Min TX power	-19dBm(mm), -15dBm(sm)
*Min RX sensitivity	-32dBm
*Max RX power	-14dBm(mm),-8dBm(sm)
*Link budge	13dB(mm),17dB(sm)
*Fiber multi-mode(mm) typical	50 or 62.5/125um
*Fiber single-mode(sm) typical	9 or 10/125um

*Fiber max. distance 2km(mm),15km(sm)

Note: Other fiber connector and transmission distance are available.

PoE port	Port 1-4, auto power management Pin assignment: TX(1,2), RX(3,6), V+(4,5), V-(7,8)
Maximum PoE power	Per port 35W
PoE disconnect mode	DC disconnect
PoE auto detection	IEEE802.3af/at
PoE protection	Over-temperature, over-current, over/under voltage
LEDs	*Link/Activity (Green ON/ Green Blinking every 43ms @100Mbps/ Green Blinking every 120ms @10Mbps) *PoE(Yellow) On-PD detect, Blinking-error detect) *POWER Green-normal, Red-alarm
Power input	Current mode:10 to 57VDC 24V-802.3at mode:12 to 36VDC 48V-802.3at mode:40 to 57VDC
Power consumption	5W without PD loading
Operating temperature	-20°C ~ 85°C
Operation humidity	90% relative humidity, non-condensing
Storage temperature	-55°C ~+105°C
Dimension	40mm(H)x118mm(W)x159mm(D)